The impact of a depression awareness campaign on mental health literacy and mental morbidity among gay men

Title:

The impact of a depression awareness campaign on mental health literacy and mental morbidity among gay men

Authors:

Jen Wang[a,e,*], Michael Häusermann[b], Sylvie Berrut[c,d], Mitchell G. Weiss[e,f]

Affiliations:

[a] Institute for Social and Preventive Medicine, University of Zurich, Hirschengraben 84, CH-8001 Zurich, Switzerland

[b] Dialogai, CP 69, CH-1211 Geneva 21, Switzerland

[c] Lestime, rue de l'Industrie 5, CH-1201 Geneva, Switzerland

[d] Swiss Statistical Office, Espace de l'Europe 10, CH-2010 Neuchâtel, Switzerland

[e] Swiss Tropical and Public Health Institute, Socinstr. 57, CH-4002 Basel, Switzerland

[f] University of Basel, Basel, Switzerland

Corresponding author:

Jen Wang, Institute for Social and Preventive Medicine, Hirschengraben 84, CH-8001 Zurich, Switzerland.

Telephone: +41 44 / 634 46 49. Fax: +41 44 / 634 49 86.

e-mail: jwang@ifspm.uzh.ch

Word count:

abstract: 249 words

main article: 4411 words

ABSTRACT

Background: High prevalences of depression and suicidality have been found among gay men. This paper assesses the possible impact of Blues-out, a depression awareness campaign based on the European Alliance Against Depression targeting the gay/lesbian community in Geneva, Switzerland.

Methods: In 2007 and 2011, pre- and post-intervention surveys were conducted among two distinct samples of gay men in Geneva, recruited by probability-based time-space sampling. Effect sizes and net percent changes are reported for mental health literacy and mental health outcomes in 2007 and 2011 as well as among men aware and unaware of Blues-out in 2011.

Results: 43% of the respondents correctly recognized depression in 2011 with no change vis-à-vis 2007. Despite small effect sizes, significant net decreases (-18% – -28%) were seen in lifetime suicide plans, 12-month suicidal ideation, lifetime depression, and 4-week psychological distress between 2007 and 2011. These decreases were not accompanied by changes in any of the numerous items on attitudes/knowledge, found only when comparing men aware and unaware of Blues-out in 2011. More men aware of Blues-out found specialists and psychological therapies helpful than their counterparts and correctly identified depression and gay men's greater risk for depression.

Limitations: Community-level assessment with no control.

Conclusions: Although improvement in depression recognition and decrease in suicide attempts could not be replicated unequivocally in this adapted intervention among gay men, there are indications that this evidence-based depression awareness campaign may be associated with improvements in suicidality and mental morbidity as well as mental health literacy and help-seeking.

Keywords: mental health literacy, depression, suicidality, homosexuality, community education/intervention

INTRODUCTION

Reviews of mental health and sexual orientation have provided a clear picture of increased prevalence and risk of depression and suicidality among sexual minorities, particularly gay men [King et al., 2008; Marshal et al., 2011]. A series of health surveys has confirmed high prevalences of depression (lifetime self-report 40%, 12-month diagnosis 19%) and suicide attempts (lifetime 19%, 12-month 4%) among gay men in Geneva, with young homo/bisexual men in Switzerland 2-5 times more likely to attempt suicide than their heterosexual counterparts [Wang et al., 2007b; Wang et al., 2012]. Of note, both depression and suicidality appear to be characterized by high levels of chronicity and relapse.

Within the framework of the Geneva Gay Men's Health Project [Häusermann et al., 2010], the University of Zurich and Dialogai—a gay community-based organization and AIDS service organization in Geneva—continued their successful community-research collaboration in response to the challenges in mental health identified above. In 2006, work began on designing a multi-phase project in mental health with the over-arching goal to prevent mental disorders and promote mental health in the gay community. The first phase consists of a depression awareness campaign to improve mental health (depression) literacy [Jorm, 2000; Jorm 2012]—e.g., access to health information, knowledge about condition/treatment, recognition of symptoms, and mental health first aid—and help-seeking in a population characterized by high prevalence of both depression and suicidality as well as challenged by stigma against both mental illness and homosexuality. Given common interests in mental health, Dialogai invited the organization Lestime to carry out the campaign activities for the lesbian community.

As no depression campaigns targeting gay men and/or lesbians were found in the mid-2000s, the decision was taken to adapt effective general population campaigns

for sexual minorities. In a pre-/post-test design, Jorm and colleagues demonstrated that the Australian depression initiative *beyondblue* was associated with a large increase in the correct recognition of depression (from 39.0% in 1995 to 67.3% in 2003/04) and the percentage of people considering specialists and antidepressants helpful [Jorm et al., 2006a]. In a pre-/post-test design with a control group, the Nuremberg Alliance Against Depression (NAD) resulted in significant net percent decreases (-19% – -32%) in the number of suicide cases (completed and attempted suicides) [Hegerl et al., 2006; Hegerl et al., 2010]. A quarter of the population in Nuremberg, Germany, became aware of the campaign, and such people were also more aware of depression in the media and held more favorable attitudes towards treatment medication [Dietrich et al., 2010].

The initial phase of Blues-out is based on the Nuremberg (and then European) Alliance Against Depression (NAD/EAAD) [Hegerl and Schäfer, 2007; Hegerl et al., 2008]. Like NAD, Blues-out covers several levels of activity, including 1) cooperation with primary care physicians, 2) a depression awareness campaign, and 3) establishing a network of institutional partnerships as support for those affected [Häusermann et al., 2010]. The EAAD campaign materials were adapted for gay men and lesbians (e.g., new images featuring only men or women and the inclusion of gay-specific content relevant to depression, including local data), while maintaining the core elements (i.e., three key messages on the generalizability, variability, and treatability of depression as well as the brochure/poster layout). The campaign was launched publicly in March 2009, with a brochure and website offering basic information on depression, a symptoms checklist, and a list of gay-friendly providers and institutions for consultation constituting the key intervention. Subsequently, additional topics (e.g., coming-out, suicide, and violence) were covered on the website, along with a hotline and emergency cards.

As a long-standing AIDS service organization, Dialogai has an established outreach team and network for distributing health-related posters, brochures, and cards in physical venues as well as banners in virtual meeting points frequented by gay men. All materials were developed in male and female versions. Two campaign waves took place between spring 2009 and spring 2011, with 15'000 brochures for men and 10'000 brochures for women being printed and distributed, and the website averaging 80 daily visits in the first year and 140 daily visits in the second year.

As the first large-scale depression campaign targeting a gay/lesbian community (and the first EAAD project adapted for this sub-population), the activities are assessed with qualitative and quantitative process and outcome evaluations. In this paper, we present the findings from the quantitative outcome evaluation to assess the possible impact of Blues-out on key indicators of mental health literacy—i.e., recognition of symptoms and knowledge/beliefs about condition/treatment—and mental health outcomes (including suicidality) among gay men.

METHODS

The Geneva Gay Men's Health Survey (GGMHS) was conducted in 2002, 2007, and 2011. The 2007 and 2011 waves focused on mental health and included the indicators for a pre- and post-intervention study for the depression awareness campaign Blues-out.

Samples

As in 2002 [Wang et al., 2007a], the 2007 and 2011 surveys employed time-space sampling, a multi-stage randomized sampling scheme developed by the Centers for Disease Control and Prevention (CDC) involving mapping of meeting points, enumeration of visits, and random selection of both venues and participants [MacKellar et al., 1996; Stueve et al., 2001]. The target population consisted of gay-identified men and other men who have sex with men who access meeting points—both real and virtual—in and around Geneva, Switzerland. Twenty distinct meeting points were included in the sampling scheme in 2007 and 24 in 2011. Nearly all of them are served by Dialogai's usual outreach activities, including those for Blues-out. According to the sampling scheme, men were randomly selected and invited to complete the anonymous survey in French directly on-site at laptops provided.

Originally, the study design was conceived as a pre- and post-intervention evaluation with a control city—i.e., sample sizes of 250 in Geneva vs. 250 in Zurich at T1, and 250 in Geneva vs. 250 in Zurich at T2. Zurich was originally conceived as an ideal wait-list control community, given its three-hour distance and language barrier. Due to the lack of support by a key stakeholder, Zurich could not be used as a control as envisaged, and the study design was modified to pre- and post-intervention assessments in Geneva alone. The sample size was modified to 500 in Geneva at T2. A total sample size of 750 would still be sufficient to yield 100 men with major depression and power of 0.70 (two-tailed) to assess an effect size of 0.5 in this sub-

group. At T1 (2007), 276 gay men participated in the survey (response rate 44%). At T2 (2011), 486 gay men participated in the survey (response rate 38%). In both years, lack of interest constituted the main reason for refusal. In order to counter lack of time as grounds for refusal, men who declined completing the questionnaire on-site were given the option to complete it later online via a unique access code. Including the respondents recruited at virtual meeting points, half the samples—48.9% in 2007 and 54.1% in 2011—completed the questionnaire later on their own online.

The socio-demographic characteristics of the 2007 and 2011 samples are summarized in Table 1. Comparing the two samples, the 2011 sample is somewhat older, with a lower proportion of residents in the canton of Geneva and a higher proportion of men who live with others. However, when the 2002 sample is added for statistical comparisons, only the higher prevalence of cohabitation remains distinctive in 2011. As already demonstrated in Geneva [Wang et al., 2007a] and elsewhere, gay male samples are younger, more educated, more urbanized, and more likely to be single compared the general male population, even when controlling for age.

Survey questions

During recruitment in 2007 and 2011, men were invited to participate in a health survey, although the instrument focused on only three major sections: 1) mental health literacy, 2) mental health status, and 3) project evaluation.

The first section was constructed based on research interests in both mental health literacy and cultural epidemiology [Weiss, 2001]. Both fields share in-depth assessment of symptoms, causes, and help-seeking from the patient's (or citizen's) perspective. Jorm and colleagues have researched the issue of mental health literacy for well over a decade and kindly permitted use of their detailed instruments

in assessing aspects of mental health literacy and evaluating depression campaigns [Jorm et al., 2006a]. Based on a case vignette of a man with depression, respondents were then asked a series of questions about the vignette: recognition of depression, perceived risk, first-aid response, help-seeking beliefs about people and professionals, help-seeking beliefs about substances (incl. medications), and help-seeking beliefs about activities (incl. therapies). For the sub-section on perceived risk of various groups for depression, we created a new question on the relative susceptibility of gay men vs. heterosexual men patterned after the existing questions.

The second section is made up of instruments assessing mental health status. As in 2002, we used a series of questions recommended by the EUROHIS project on harmonizing indicators for health interview surveys in Europe [Nosikov and Gudex, 2003]: psychological distress (in the past 4 weeks) as assessed by the Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey (SF-36) with cut-off point at 52 [Ware and Gandek, 1998], self-reported chronic depression and anxiety (in the past 12 months and lifetime), and major depression (in the past 12 months) as assessed by the WHO Composite International Diagnostic Interview Short Form (CIDI-SF) [Kessler et al., 1998]. Additionally, we included items assessing non-specific serious mental illness (in the past 4 weeks) using the K6 with cut-off point at 13 [Kessler et al., 2003] and suicidality (in the past 12 months and lifetime) [Paykel et al., 1974].

Finally, there was a brief section with questions evaluating exposure to and satisfaction with Blues-out and other gay men's health projects at Dialogai. The question assessing awareness of Blues-out was: "Have you heard of Blues-out?" If a respondent responded "no", the same question was repeated with an image of the Blues-out poster/brochure cover as a visual prompt.

Statistical analysis

As the main goal of this publication is to assess possible changes in mental health literacy and psychiatric morbidity / suicidality before and after the launch of Blues-out, we merged the 2007 and 2011 datasets and made direct statistical comparisons using survey year as the independent variable. Supplementing these findings, we also assessed possible differences in mental health literacy and psychiatric morbidity / suicidality between men aware of Blues-out and men unaware in the 2011 survey.

Data analysis was performed using IBM SPSS Statistics for Macintosh version 19.0 (Chicago, IL, USA). Nominal and ordinal variables were analyzed using contingency tables and the chi-squared test. For normally distributed continuous variables, the t-test was used. In the tables, the p-values are reported together with phi (ϕ) as an indicator of effect size. According to Cohen [1988], 0.10 indicates a small effect size, 0.30 a medium effect size, and 0.50 a large effect size.

RESULTS

Differences between T1 and T2

Table 2 shows the percentage of respondents who correctly identified depression in an open question about the case vignette in 2007 and 2011. In French, one must take a linguistic peculiarity into account: “dépression / dépressif” refers to depression / depressed, and the lexically similar term “déprime / déprimé” refers to depressed mood / down. As some French speakers use the two terms interchangeably, the findings for “déprime” are also shown in Table 2. Taken together, 56% of the respondents identified either depression and/or “déprime” in both 2007 and 2011.

Similarly, no change in the numerous items on attitudes or knowledge about help-seeking, depression, or suicidality was evidenced between T1 and T2, not even in the main messages of the EAAD—e.g., 88% agree that “depression can affect anyone”, and 88% agree that “depression can be treated”. As such, the datasets were combined for a detailed presentation of mental health literacy among gay men described elsewhere [Wang et al., submitted].

Levels of suicidality in 2007 and 2011 are shown in Table 3. While no changes are seen in the prevalence of suicide attempts, significant declines are evidenced in lifetime prevalences of suicidal ideation (net change of -18%) and suicide plans (net change of -29%). The decline in lifetime suicidal ideation can be attributed in part to a declining trend in the past 12 months. These differences are even more interesting when viewed against the fact that the prevalences for these three forms of suicidality remained stable between 2002 and 2007 [Wang et al., 2012].

Table 3 also contains findings on lifetime, 12-month, and 4-week mental morbidity at T1 and T2. While there is a significant decline in prevalences of self-reported lifetime

chronic depression (net change of -18%) between 2007 and 2011, decreases in 12-month depression—as oneself having a problem similar to the one described in the case vignette without explicit mention of depression (net change of -24%) and as diagnosed by CIDI-SF (net change of -25%)—do not reach statistical significance. Upon closer inspection, the prevalence of men screen-positive in the past 12 months remained stable between 2002 and 2011—37.3% in 2002, 38.1% in 2007, 36.5% in 2011. As such, the decline in 12-month major depression in 2011 is due to decreased severity (i.e., duration) of the two main symptoms and not to a decrease in prevalence of depressed mood and anhedonia overall.

Among those diagnosed with major depression in the past 12 months by the CIDI-SF, a higher percentage of cases in 2011 was aware of their own depression (55.9% vs. 41.3%, p=0.33; phi=0.15, net increase of 35.4%) or spoke to a doctor about their (depression) problems (53.1% vs. 38.5%, p=0.12; phi=0.15, net increase of 37.9%), although they do not reach statistical significance.

The data also suggest declines in 4-week mental morbidity—i.e., high psychological distress (net change of -28%) and serious mental illness (net change of -23%). These declines are also evidenced by significant changes in mean scores for MHI-5—mean score 62.5 (95% CI 60.4-64.7) in 2007 and 66.1 (95% CI 64.5-67.7) in 2011—and K6—mean score 8.6 (95% CI 8.1-9.2) in 2007 and 7.8 (95% CI 7.3-8.2). For psychological distress, only the symptom feeling down in the dumps saw a small decline in prevalence, so the changes here can also be largely ascribed to decreased severity (i.e., duration). For serious mental illness, however, four of the six composite symptoms were actually less prevalent in 2011, but the decline did not reach statistical significance.

Awareness of Blues-out at T2

Among the respondents in 2011, 24.5% reported having heard of Blues-out. An additional 8.4% recognized Blues-out with a visual prompt. All summed, a third of the respondents (32.9%) recognized Blues-out in 2011.

Differences between those aware and unaware of Blues-out at T2

In order to further assess the possible impact Blues-out on the community, men who were aware of Blues-out (32.9%) are compared with men who were not (67.1%). A few differences in key indicators of mental health literacy between the two groups can be seen in Table 4. Over half of the men aware of Blues-out (55.1%) correctly identified depression in the case vignette. Both the open question on mental health first aid and the individual items assessing attitudes towards therapists showed that more men aware of Blues-out found specialists such as psychiatrists to be helpful for the case vignette. Similarly, more men aware of Blues-out found psychological therapies such as counselling, psychotherapy, and cognitive behavioral therapy (CBT) to be helpful. Men aware of Blues-out were also less likely to reply "don't know" when queried about the utility of professionals—e.g., psychologist 2.1% vs. 5.2% and psychiatrist 5.0% vs. 11.5%—and therapies—e.g., psychotherapy 9.2% vs. 16.0%, counselling 13.5% vs. 18.5%, and CBT 27.7% vs. 38.0%. Significantly more men aware of Blues-out understood the greater risk of gay men in encountering the condition described in the case vignette.

Analogous to Table 2, Table 5 presents comparisons along suicidality and psychiatric morbidity. No statistically significant differences are evidenced, except for the trend that men aware of Blues-out appear to demonstrate higher levels of suicidal ideation and self-reported lifetime depression.

DISCUSSION

Blues-out is the first depression awareness campaign modelled after successful general population campaigns adapted by and for the gay/lesbian community. We assessed its impact along campaign exposure, mental health literacy, and mental morbidity/suicidality. A third of the respondents (32.9%) recognized Blues-out in 2011. Such men were more likely to find specialists and psychological therapies helpful and correctly identify depression and gay men's greater risk for depression. Despite small effect sizes, significant net decreases (-18% – -28%) were seen in lifetime suicide plans, 12-month suicidal ideation, self-reported lifetime depression, and 4-week psychological distress between 2007 and 2011. It is informative to discuss these findings within the context of the current evidence base for general populations.

Campaign exposure

The Blues-out campaign has achieved a comparable degree of recognition in the gay community of Geneva as *beyondblue* had among the general population in Australia [Jorm et al., 2005] and the original Alliance Against Depression among the general population in Nuremberg [Dietrich et al., 2010].

Evaluation findings for Dialogai's other health-related interventions provide additional context and grounds for comparison [Häusermann et al., 2010]. The Geneva Gay Men's Health Project (launched publically in 2001), the Geneva Gay Men's Health Survey brochure (launched publically in 2003), and the program Être gai ensemble (Being gay together, launched publically in 2004) all enjoyed comparable rates of recognition among men in 2007. The sole exception is Checkpoint, the first HIV and STI (sexually transmitted infections) service for gay men in Switzerland (launched publically in 2005), which was recognized by two-thirds of the respondents in 2007. Although using similar targeted media, the most obvious reason for the discrepancy

is that HIV projects enjoy significantly greater funding and manpower than others resulting in greater visibility, but Checkpoint also shows the potential reach of targeted projects using targeted media.

Mental health literacy

The level of recognition of depression symptoms is also comparable to those seen in the general populations of Switzerland [Lauber et al., 2003; Wang and Schmid, 2007] and Australia before *beyondblue* [Jorm et al., 2005]. But unlike Australia, no increase in the recognition of depression has been evidenced post-intervention among gay men in Geneva.

In addition to recognition, there were also many similarities in general attitudes and help-seeking beliefs with general populations, as described in detail elsewhere [Wang et al., submitted]. However, they remained unchanged at the community level between 2007 and 2011. The comparisons of men aware and unaware of Blues-out did uncover some interesting differences in attitudes and knowledge. More men aware of Blues-out considered specialists and psychological therapies helpful than their counterparts, and accordingly recommended specialists and professionals for the case vignette. Importantly, more men aware of Blues-out correctly identified depression and gay men's (and single people's) greater risk for depression. Studies have repeatedly demonstrated important differences in socio-demographics between gay and heterosexual men, including the fact that gay men are more likely to be single and living alone [Sandfort et al., 2001].

It must be noted that with few exceptions, changes in attitudes or knowledge were also modest or non-existent in general populations pre- and post-intervention [Paykel et al., 1998; Jorm et al., 2006a; Dietrich et al., 2010]. These consistent findings question the actual mechanisms between knowledge and attitudes on the one hand

and suicidality and mental morbidity on the other. They also underscore the challenges in pinning down single mechanisms in such broad-based campaigns with multiple interventions at multiple levels. However, recent follow-up from Australia suggest that changes in attitudes may actually become more pronounced over time in light of a sustained and growing campaign [Reavley and Jorm, 2012]. As such, the two-year follow-up period in this evaluation might be too short.

Mental morbidity and suicidality

Reported suicide cases (completed and attempted suicides) constituted the main outcome in Nuremberg, but such data could not be collected for gay men in Geneva. Instead, self-reported lifetime and 12-month suicidality were assessed in this high prevalence population [Wang et al., 2012]. While no significant changes between T1 and T2 were seen for suicide attempts, significant declines were found for lifetime suicide plans (net decrease of -29%) and 12-month suicidal ideation (net decrease of -22%) at levels comparable to those evidenced in NAD [Hegerl et al., 2006; Hegerl et al., 2010].

As an innovation over the existing evaluation studies, mental health status was assessed in this population with high levels of mental morbidity [Wang et al., 2007b]. Multiple indicators point to a decrease in 12-month depression and 4-week psychological distress between 2007 and 2011. These changes were of comparable magnitude (net decreases of -18% – -28%) as the net declines in suicide cases reported by NAD [Hegerl et al., 2006; Hegerl et al., 2010]. While there were decreases in both self-reported depression and actual major depression in this study, depression literacy campaigns have coincided with increased levels in self-reported lifetime depression in general populations in both the UK [Paykel et al., 1998] and Australia [Jorm et al., 2006b]. As the National Surveys on Mental Health and Wellbeing in Australia cannot confirm actual increases in 12-month prevalence of

major depression or mood disorders between 1997 and 2007 [Andrews et al., 2001; Slade et al., 2009], the increase in self-report appears to be due to increased sensitization and/or recognition. Furthermore, there were no significant changes in 4-week symptoms of depression in the Australian general population between T1 and T2 nor any differences between groups with high and low exposure to *beyondblue* [Jorm et al., 2006b]. These discrepancies in findings may suggest differential impact of a campaign in high vs. low prevalence populations.

Finally, men aware of Blues-out were more likely to report lifetime suicidal ideation and depression, suggesting that personal experience may account in part for exposure to Blues-out and/or the changes in attitudes and knowledge above.

Limitations

The findings need to be viewed against certain methodological limitations. Firstly, this intervention study has no control group even though one was originally envisioned in the study plan. Attempts to include the gay community in Zurich as a wait-list control proved unsuccessful. Lack of a control as does the use of two independent samples—though standard practice in community-wide evaluations—means that the differences observed in Geneva between T1 and T2 may be due to causes other than the campaign. National campaigns such as the Defeat Depression Campaign and *beyondblue* were not evaluated with control groups either, but the NAD used a pre-test/post-test design with a control to great success.

Secondly, most of the significant changes reported in this paper have small effect sizes ranging between 0.10 and 0.20. According to reviews, small effect sizes are typical of many community-based and community-level health interventions generally [Sorensen et al., 1998; Merzel and D'Afflitti, 2003], but also mental health literacy campaigns like Blues-out specifically [Francis et al., 2002; Jané-Llopis et al., 2003].

Additional findings on exposure to the campaign (data not shown) reveal that exposure to Blues-out varied strongly by geography, venue type, and media. Similarly, the degree of exposure amongst the respondents could range from a cursory view of the poster or banner to having read all the sections of the brochure or website. Only 11.1% of the respondents in 2011 (or a third of the 32.9% of men who were aware of Blues-out) saw the brochure or website. They were also much more likely to consider the campaign useful (70%) and recommend it to others (92%). As such, the true impact of the campaign tools may be diluted by differential exposure to the core elements of the intervention.

Thirdly, recruitment was conducted at different times of the year—October-November in 2007 and from mid-May through mid-July in 2011. As such, seasonality may account in part for some of the changes in mental morbidity observed between T1 and T2. Although there was a decreasing trend in 12-month prevalence of major depression between 2007 and 2011, the total prevalence of men who suffered the two main symptoms for at least two continuous weeks remained stable, suggesting that seasonality may account at least in part for lower severity (i.e., duration).

Finally, the total number of participants is smaller than originally planned due to the lack of control in 2007 and recruitment problems in 2011. Statistical power appears to be an issue for the sub-group of men with depression, as the effect sizes did not turn out to be as large as originally hypothesized. Although the same recruitment strategy has been used for the GGMHS since 2002, the response rate has dropped from 50% in 2002 to 38% in 2011. The decline may be attributed to the growing proportion of Internet recruits, a weak recruitment team in 2011, and a certain survey fatigue given the increased frequency of HIV monitor surveys. Even so, the socio-demographic profile appears comparable between 2002 and 2011, with the possible exception of cohabitation in 2011. While the generalizability of these findings is

limited to gay men within the sampling scheme of meeting points, confirmation studies have shown that time-space sampling provides robust coverage of gay men living in urban areas [Pollack et al., 2005]. For targeted health campaign activities, such meeting points constitute crucial vectors for communication. In this intervention study, there is actually consistent overlap between the meeting points used to distribute targeted media for Blues-out and to recruit a representative community sample for data collection.

Conclusions

Despite the lifetime prevalence of depression and its high health burden in the general population [Moussavi et al., 2007], there are relatively few public health interventions targeting the condition and even fewer targeting the condition in high prevalence groups. Strengthening the evidence base for original and adapted interventions for high prevalence groups needs to be a priority in public mental health. Testing interventions in high prevalence populations not only facilitates the assessment of program impact on people with or at high risk of depression or suicidality, but may also reveal important discrepancies between the general population and at-risk groups.

Although the main outcome indicators in the literature to date—i.e., improvement in depression recognition and decrease in suicide attempts—could not be replicated unequivocally in this intervention study among gay men, there are indications that this evidence-based depression awareness campaign may be associated with improvements in suicidality and mental morbidity as well as mental health literacy and help-seeking. However, since the changes in mental morbidity evidenced between T1 and T2 are not accompanied by changes in mental health literacy nor are they concordant with differences among those aware of Blues-out, it appears that

the actual pathways of multi-faceted campaigns may be rather complex and worthy of in-depth investigation.

REFERENCES

Andrews G, Henderson G, Hall W. Prevalence, comorbidity, disability and service utilisation: overview of the Australian National Mental Health Survey. *Br J Psychiatry* 2001;178:145-153.

Cohen J. *Statistical Power Analyses for the Behavioral Sciences.* Hillsdale, NJ: Lawrence Erlbaum, 1988.

Dietrich S, Mergl R, Freudenberg P, Althaus D, Hegerl U. Impact of a campaign on the public's attitudes towards depression. *Health Education Research* 2010;25(1):135-150.

Francis C, Pirkis J, Dunt, D, Warwick Blood R, Davis C. *Improving Mental Health Literacy: A Review of the Literature.* Melbourne: Center for Health Program Evaluation, 2002.

Häusermann M, Wang J, Mandicourt G. Le projet santé gaie de Dialogai: de la recherche à l'action. In Jablonski O, Le Talec J-Y, Sidéris G (eds). *Santé gaie.* Paris: Editions Pepper – L'Harmattan, 2010.

Hegerl U, Althaus D, Schmidtke A, Niklewski G. The alliance against depression: 2-year evaluation of a community-based intervention to reduce suicidality. *Psychological Medicine* 2006;36:1225-1233.

Hegerl U, Mergl R, Havers I, Schmidtke A, Lehfeld H, Niklewski G, Althaus D. Sustainable effects on suicidality were found for the Nuremberg alliance against depression. *Eur Arch Psychiatry Clin Neurosci* 2010;260:401-406.

Hegerl U and Schäfer R. Vom Nürnberger Bündnis gegen Depression zur European Alliance Against Depression (EAAD)—Gemeindebasierte Awareness-Kampagnen in Deutschland und Europa. *Psychiat Prax* 2007;34(Supp):S261-S265.

Hegerl U, Wittmann M, Arensman E, van Audenhove C, Bouleau J-H, van der Feltz-Cornelis C, Gusmão R, Kopp M, Löhr C, Maxwell M, Meise U, Mirjanič M, Óskarsson H, Pérez Sola V, Pull C, Pycha R, Rička R, Tuulari J, Värnik A, Pfeiffer-Gerschel T. The 'European Alliance Against Depression (EAAD)': A multifaceted community-based action programme against depression and suicidality. *The World Journal of Biological Psychiatry* 2008;9:51-59.

Hickie I. Can we reduce the burden of depression? The Australian experience with *beyondblue: the national depression initiative*. *Australasian Psychiatry* 2004;12(Suppl):38-46.

Jané-Llopis E, Hosman C, Jenkins R, Anderson P. Predictors of efficacy in depression prevention programmes. *British Journal of Psychiatry* 2003;183:384-397.

Jorm AF. Mental health literacy: public knowledge and beliefs about mental disorders. *British Journal of Psychiatry* 2000;177: 396-401.

Jorm AF. Mental health literacy: empowering the community to take action for better mental health. *American Psychologist* 2012;67:231-243.

Jorm AF, Christensen H, Griffiths KM. The impact of *beyondblue: the national depression initiative* on the Australian public's recognition of depression and beliefs about treatments. *Australian and New Zealand Journal of Psychiatry* 2005;39:248-254.

Jorm AF, Christensen H, Griffiths KM. The public's ability to recognize mental disorders and their beliefs about treatment: changes in Australia over 8 years. *Australian and New Zealand Journal of Psychiatry* 2006;40:36-41. [A]

Jorm AF, Christensen H, Griffiths KM. Changes in depression awareness and attitudes in Australia: the impact of *beyondblue: the national depression initiative*. *Australian and New Zealand Journal of Psychiatry* 2006;40:42-46. [B]

Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand S-LT, Walters EE, Zaslavsky AM. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine* 2002;32:959-976.

Kessler RC, Andrews G, Mroczek D, Üstün B, Wittchen H-U. The World Health Organization Composite International Diagnostic Interview Short-Form (CIDI-SF). *Int J Methods Psychiatr Res* 1998;7:171-185.

King M, Semlyen J, Tai SS, Killaspy H, Osborn D, Popelyuk D, Nazareth I. A systematic review of mental disorder, suicide, and deliberate self-harm in lesbian, gay and bisexual people. *BMC Psychiatry* 2008;8:70.

Lauber C, Nordt C, Falcato L, Rössler W. Do people recognise mental illness? Factors influencing mental health literacy. *Eur Arch Psychiatry Clin Neurosci* 2003;253:248-251.

MacKellar D, Valleroy L, Karon J, Lemp G, Janssen R. The Young Men's Survey: methods for estimating HIV prevalence and risk factors among young men who have sex with men. *Public Health Rep* 1996;111(Suppl):138-144.

Marshal MP, Dietz LJ, Friedman MS, Stall R, Smith HA, McGinley J, Thoma BC, Murray PJ, D'Augelli AR, Brent DA. Suicidality and depression disparities between sexual minority and heterosexual youth. *Journal of Adolescent Health* 2011;49:115-123.

Merzel C and D'Afflitti J. Reconsidering community-based health promotion: promise, performance, and potential. *Am J Public Health* 2003;93:557-574.

Nosikov A and Gudex C. *EUROHIS: Developing Common Instruments for Health Surveys.* Amsterdam: IOS Press, 2003.

Paykel ES, Hart D, Priest RG. Changes in public attitudes to depression during the Defeat Depression Campaign. *British Journal of Psychiatry* 1998;173:519-522.

Pollack LM, Osmond DH, Paul JP, Catania JA. Evaluation of the Center for Disease Control and Prevention's HIV Behavioral Surveillance for men who have sex with men: sampling issues. *Sexually Transmitted Diseases* 2005;32:581-589.

Reavley NJ and Jorm AF. Public recognition of mental disorders and beliefs about treatment: changes in Australia over 16 years. *Br J Psychiatry* 2012;200:419-425.

Sandfort TGM, de Graaf R, Bijl RV, Schnabel P. Same-sex sexual behavior and psychiatric disorders: Findings from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Arch Gen Psychiatry* 2001;58:85-91.

Slade T, Johnston A, Teesson M, Whiteford H, Burgess P, Pirkis J, Saw S. *The Mental Health of Australians 2: Report on the 2007 National Survey of Mental Health and Wellbeing.* Canberra: Department of Health and Ageing, 2009.

Sorensen G, Emmons K, Hunt MK, Johnston D. Implications of the results of community intervention trials. *Annu Rev Public Health* 1998;19:379-416.

Stueve A, O'Donnell LN, Duran R, San Doval A, Blome J. Time-space sampling in minority communities: results with young Latino men who have sex with men. *Am J Public Health* 2001;91:922-926.

Wang J, Häusermann M, Ajdacic-Gross V, Aggleton P, Weiss MG. High prevalence of mental disorders and comorbidity in the Geneva Gay Men's Health Survey. *Social Psychiatry and Psychiatric Epidemology* 2007;42:414-420. [A]

Wang J, Häusermann M, Vounatsou P, Aggleton P, Weiss MG. Health status, behavior, and care utilization in the Geneva Gay Men's Health Survey. *Preventive Medicine* 2007;44:70-75. [B]

Wang J, Häusermann M, Weiss MG. Mental health literacy and the experience of depression in a community sample of gay men. Submitted.

Wang J, Häusermann M, Wydler H, Mohler-Kuo M, Weiss MG. Suicidality and sexual orientation among men in Switzerland: Findings from 3 probability surveys. *Journal of Psychiatric Research* 2012;46:980-986.

Wang J and Schmid MR. Mental health literacy and health literacy in the Swiss general population. Oral presentation at the Swiss Public Health Conference, 21-22 June 2007, in Olten, Switzerland.

Ware JE and Gandek B. Overview of the SF-36 Heath Survey and the International Quality of Life Assessment (IQOLA) Project. *J Clin Epidemiol* 1998;51(11):903-912.

Weiss M. Cultural epidemiology: an introduction and overview. *Anthropology & Medicine* 2001;8(1):5.29.

Table 1. Descriptive characteristics of gay men in GGMHS, 2007-11

	2007 (N=276)		2011 (N=486)		
	n	%	n	%	*P* value
Age					0.02
≤24 years	53	20.9	60	14.0	
25-34 years	66	26.1	128	29.9	
35-44 years	80	31.6	111	25.9	
45-54 years	37	14.6	91	21.3	
≥55 years	17	6.7	38	8.9	
Education					0.56
Mandatory education	16	6.3	31	7.2	
Apprenticeship	54	21.3	78	18.2	
Gymnasium	19	7.5	22	5.1	
Other prof. training	50	19.8	88	20.6	
University	114	45.1	209	48.8	
Employment status					0.66
Paid employment	192	75.9	333	77.8	
In school	35	13.8	48	11.2	
Other situation	16	6.3	33	7.7	
Unemployed	10	4.0	14	3.3	
Place of residence					0.02
Geneva (canton)	142	55.7	190	44.5	
Vaud	52	20.4	93	21.8	
Ain or Haute-Savoie	36	14.1	79	18.5	
Other	25	9.8	65	15.2	
Urbanicity					0.48
<20,000 inhabitants	94	37.0	176	41.4	
20,000-99,999 inhabitants	39	15.4	68	15.9	
≥100,000 inhabitants	121	47.6	184	43.0	
Co-habitation					0.04
Lives alone	142	55.9	207	48.4	
Lives with others	112	44.1	221	51.6	

Table 2. Identification of depression or depressed mood „déprime“ in a case vignette*, among gay men in GGMHS, 2007-11

	2007 %	2011 %	Phi	*P* value
depression	45.7	43.2	0.02	0.51
“déprime” (depressed mood)	12.0	15.0	0.04	0.24

* open question, multiple responses possible

Table 3. Suicidality and psychiatric morbidity by age group, among gay men in GGMHS, 2007-11

	2007 %	2011 %	Phi	*P* value
Suicidality				
Suicidal ideation				
≤12 months	21.3	16.6	0.05	0.13
ever	55.8	47.8	0.08	0.04
Suicide plans				
≤12 months	10.1	8.7	0.02	0.59
ever	38.5	27.5	0.11	0.003
Suicide attempts				
≤12 months	1.6	2.2	0.02	0.78
ever	17.1	16.3	0.01	0.83
Depression				
Problem in the case vignette				
≤12 months	25.7	19.6	0.07	0.06
ever	61.1	53.9	0.07	0.06
Chronic depression (self-report)				
≤12 months	13.2	13.3	0.002	1.00
ever	57.0	46.9	0.10	0.01
Major depression (CIDI-SF)				
≤12 months	17.5	13.1	0.06	0.13
Mental heath symptoms <4 weeks				
High psychological distress (MHI-5)	29.2	21.0	0.09	0.015
Serious mental illness (K6)	18.7	14.4	0.06	0.13

Table 4. Selected indicators of mental health literacy by awareness of Blues-out, among gay men in GGMHS, 2011

	aware (n=141) %	unaware (n=287) %	Phi	*P* value
Identification of case vignette*				
depression	55.1	41.5	0.09	0.06
„déprime“ (depressed mood)	17.0	15.3	0.02	0.65
Help proposed for case vignette*				
listen/talk to him	51.8	50.9	0.01	0.86
tell him to see a doctor	23.4	27.9	0.05	0.32
tell him to see a specialist	21.3	12.2	0.12	0.01
tell him to see a professional	16.3	7.3	0.14	0.004
Helpful people for case vignette				
close friend	91.5	91.3	0.003	0.95
psychologist	82.3	76.7	0.06	0.21
general practitioner	72.3	73.5	0.01	0.82
psychiatrist	59.6	48.1	0.11	0.03
Helpful therapies for case vignette				
relaxation / meditation	85.8	83.6	0.03	0.67
counselling	72.3	58.2	0.14	0.006
psychotherapy	67.4	58.2	0.09	0.07
CBT	45.4	32.4	0.13	0.01
anti-depressants	35.4	31.0	0.05	0.38
Relative group risk for case vignette				
women greater than men	9.9	13.6	0.05	0.35
singles greater than coupled	46.1	36.6	0.09	0.07
gay men greater than straight men	63.8	46.7	0.16	0.001

* open question, multiple responses possible

Table 5. Suicidality and psychiatric morbidity by awareness of Blues-out, among gay men in GGMHS, 2011

	aware %	unaware %	Phi	*P* value
Suicidality				
Suicidal ideation				
≤12 months	20.6	14.6	0.08	0.13
ever	55.4	44.9	0.10	0.05
Suicide plans				
≤12 months	9.9	7.7	0.04	0.46
ever	31.2	25.8	0.06	0.25
Suicide attempts				
≤12 months	2.1	1.7	0.01	0.72
ever	18.4	14.9	0.04	0.40
Depression				
Problem in the case vignette				
≤12 months	20.6	18.8	0.02	0.70
ever	59.6	51.6	0.08	0.12
Chronic depression (self-report)				
≤12 months	14.2	12.5	0.02	0.65
ever	52.5	44.3	0.16	0.12
Major depression (CIDI-SF)				
≤12 months	13.5	12.9	0.02	0.65
Mental heath symptoms <4 weeks				
High psychological distress (MHI-5)	22.0	20.6	0.02	0.80
Serious mental illness (K6)	15.6	12.9	0.04	0.45